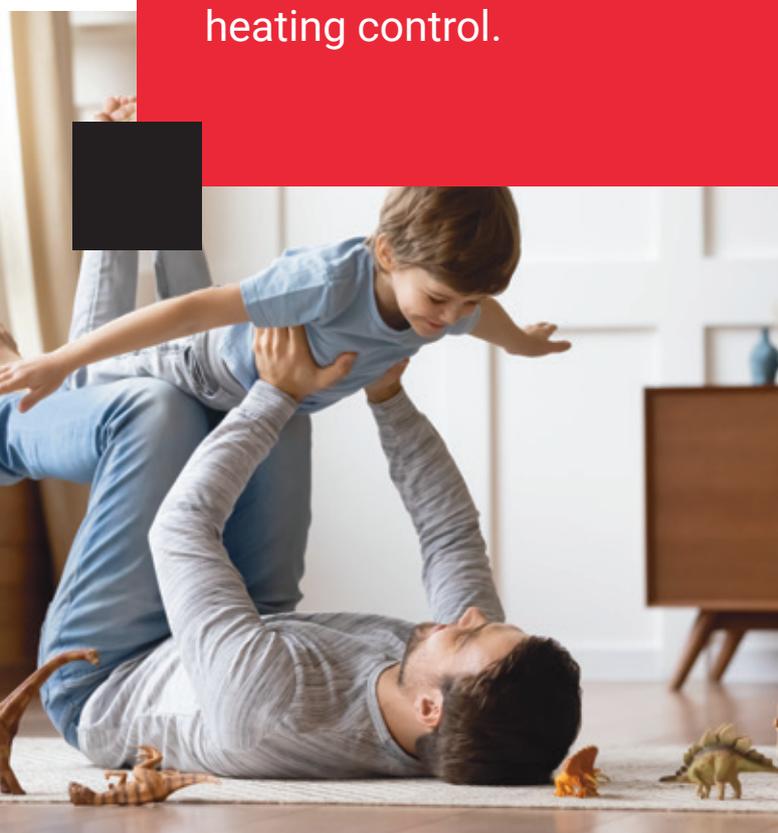




resideo

Optimal heating control.

Centra rotary valves and linear valves – the reliable valves for heating control.



Advantages of mixed circuits

A mixed circuit is the perfect solution for adapted supply temperatures and low return temperatures. As a connecting link between building systems and control technology, it is used to provide consumers with the appropriate supply temperatures at all times that have been adapted to the requirements. To this end, a three-way actuator is used for adding hot water from the boiler supply line and mixing it with cooled water from the heating circuit return.

In the case of systems with multiple circuits, a mixed circuit can be used to ensure that each sub circuit is provided with the appropriate supply temperature required by its individual consumers. For more complex systems with buffer storage, the mixed circuit serves to reduce the buffer temperature to the required value.

At a glance.

Control of partial load states

Reduction of distribution loss

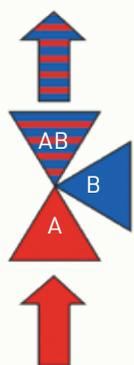
Reduction of buffer storage
temperature range for the
heating supply



The system hydraulics are the decisive factor

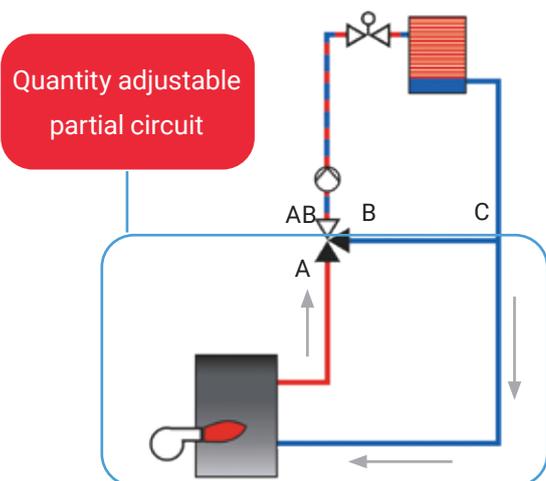
EXPERTS KNOW:

the system hydraulics determine the control result and the control quality! A controlled system begins with the controller; this is the basis for calculations, configuration and sizing. The configuration of the hydraulics and the selection of actuators are critical to achieve an optimum control result!



Using the three-way actuator, hot supply water from the primary circuit (A) is combined with the cooler return flow from the sub circuit (B) to form a common heating supply flow (AB). The resulting heating supply temperature depends on the mixing ratio.

**Partial flow gate A + partial flow gate B
= total flow gate AB**



THE RULE TO REMEMBER FOR SIZING ACTUATORS

The valve resistance should be equal to the pressure drop of the sub circuit in which the position water is mixed due to the valve position.

The schematic at the left-hand side shows the change in the amount of water from point C via the heat quantity element to point A.

Overview of rotary valve program

Centra rotary valves are mainly used as the central supply temperature control system for heating systems. For both boilers and buffer storage systems, the advantages of a control system that ensures a supply temperature that is continuously adapted to the requirements are perfectly clear:

- Degree-accurate supply temperatures adapted to the outside temperature and
- A constant preferred temperature even during buffering.

Centra universal 3-way rotary valve (DRU / DRR)



DRU

Grey cast iron housing		
Nominal size	Kvs	Part no.
DN	value	
25	2.5	DRU25-2,5
	4	DRU25-4,0
	6.3	DRU25-6,3
	10	DRU25-10
32	10	DRU32-10
	16	DRU32-16
	25	DRU32-25



DRR

Red brass housing		
Nominal size	Kvs	Part no.
DN	value	
25	2.5	DRR25-2,5
	4	DRR25-4,0
	6.3	DRR25-6,3
	10	DRR25-10
	16	DRR25-16

Centra 3-way rotary valve with straight through passage (DRG...LA)



DR..GMLA

Threaded version		
Nominal size	Kvs	Part no.
DN	value	
15	2	DR15-2GMLA
15	4	DR15GMLA
20	6.3	DR20GMLA
25	10	DR25GMLA
32	16	DR32GMLA
40	25	DR40GMLA



DR..GFLA

Flanged version		
Nominal size	Kvs	Part no.
DN	value	
20	6.3	DR20GFLA
25	10	DR25GFLA
32	16	DR32GFLA
40	25	DR40GFLA
50	40	DR50GFLA
65	63	DR65GFLA
80	100	DR80GFLA
100	160	DR100GFLA
125	250	DR125GFLA
150	630	DR150GFLA
200	1000	DR200GFLA-1
200	1600	DR200GFLA

Centra 3-way rotary valve with angled passage (DR...A)



DR..MA

Threaded version		
Nominal size	Kvs	Part no.
DN	value	
15	4	DR15MA
20	6.3	DR20MA
25	10	DR25MA
32	16	DR32MA
40	25	DR40MA



DR..FA

Flanged version		
Nominal size	Kvs	Part no.
DN	value	
40	25	DR40FA
50	40	DR50FA
65	63	DR65FA
80	100	DR80FA
100	160	DR100FA
125	250	DR125FA
150	400	DR150FA
200	630	DR200FA

Centra 4-way rotary valve (ZR...A)



ZR...MA

Threaded version		
Nominal size	Kvs	Part no.
DN	value	
15	4	ZR15MA
20	6.3	ZR20MA
25	10	ZR25MA
32	16	ZR32MA
40	25	ZR40MA



ZR...FA

Flanged version		
Nominal size	Kvs	Part no.
DN	value	
25	10	ZR25FA
32	16	ZR32FA
40	25	ZR40FA
50	40	ZR50FA
65	63	ZR65FA
80	100	ZR80FA
100	160	ZR100FA
125	250	ZR125FA
150	400	ZR150FA
200	630	ZR200FA

Centra 4-way compact rotary valve (ZRK)



ZRK

Threaded version		
Nominal size	Kvs	Part no.
DN	value	
20	6.3	ZRK20
25	10	ZRK25
32	16	ZRK32
40	25	ZRK40

TECHNICAL DATA

Material:	Housing: grey cast iron, GG 20 Red brass, RG 5, for DRR type Rotary plug: GG 20, chrome-plated
Color:	Signal grey (RAL 7004)
Nominal sizes:	DN 15 to DN 200
Nominal pressure:	PN 6 DR, DRG, ZR and ZRK type PN 10 DRU/DRR type
Medium:	Heating water with a glycol mix ratio of up to 50 % according to VDI 2035
Temperature range:	+2 to 130 °C (DN 15 to 150) +2 to 110 °C (DN 200 and ZRK)
Leakage rate:	< 1 % of Kvs value at max. permissible differential pressure
Rotary valve seal:	double o-ring seal; The system does not need to be drained to replace the outer o-ring.
Range of control:	90°
Characteristic:	Roughly equal percentage; achieved due to special formed rotary valve

Max. permissible differential pressure

Nominal size DN	15	20	25	32	40	50	65	80	100	125	150	200
Δp (kPa)*	100	100	100	100	100	100	100	100	80	50	30	20
Actuator	VMM 20 /VRM20						VMM 30			VMM 40		

* 100 kPa = 1 bar

Matching Centra rotary actuators



VMM/VRM

Nominal size DN	Part no.	Line voltage V	Running time min	Control signal
15 - 65	VMM20	230	1.6	Three-point
	VMM20-24	24	1.6	Three-point
	VRM20	24	1.5 ... 4	floating, 0-10 V
80 - 150	VMM30	230	2.3	Three-point
	VMM30-24	24	2.3	Three-point
200	VMM40	230	3.5	Three-point
	VMM40-24	24	3.5	Three-point

Butterfly valve

Used to separate individual boilers from the water side in the case of boilers connected in series or similar applications. Butterfly valves should not be used as an actuator for a continuous control system. Suitable for heating water with antifreeze and corrosion protection water mixture (max. 50 %) according to VDI 2035.

Butterfly valve V5421B



V5421B

Nominal size DN	Kvs value	Max. diff. pressure kPa	Torque for max. ΔP Nm	Medium temp. °C	Part no.
25	26	1,600	8	-10 ... 120	V5421B1009
32	26	1,600	8	-10 ... 120	V5421B1017
40	50	1,600	12	-10 ... 120	V5421B1025
50	116	1,000	12	-10 ... 120	V5421B1033
65	259	1,000	15	-10 ... 120	V5421B1041
80	377	1,000	25	-10 ... 120	V5421B1058
100	763	800	40	-10 ... 120	V5421B1066
125	1,030	600	40	0 ... 90	V5421B1074
150	1,790	400	40	0 ... 90	V5421B1082

TECHNICAL DATA

Valve type:	Motor-actuated shut-off valve
Medium:	Heating water with a glycol mix ratio of up to 50 % according to VDI 2035
Material:	Housing material and gate valve, GGG 40
Stat. pressure:	PN 16
Pipe connection:	Clamp between flanges PN 6 to PN 16
Valve packing:	EPDM-HT
Rotation angle:	90°
Leakage class:	1 (bubble tight as per DIN 50014)

Matching Centra rotary actuators



VMM/VRM

Nominal size DN	Part no.	Line voltage V	Running time min	Control signal
25 - 65	VMM20	230	1.6	Three-point
	VMM20-24	24	1.6	Three-point
	VRM20	24	1.5 ... 4	floating, 0-10 V
80	VMM30	230	2.3	Three-point
	VMM30-24	24	2.3	Three-point
100 - 150	VMM40	230	3.5	Three-point
	VMM40-24	24	3.5	Three-point

Overview of control valve program



Centra control valves are suitable for all hydraulic applications relevant to district heating systems and HVAC systems. All valves can be combined with drives for three-point control and a 230 V or 24 V supply or continuous 0 to 10 V control with a 24 V supply. The most suitable combination of valve and actuator is shown in the table "Valves with matching actuator".

Centra 2-way valves



VDE

- PN 16
- Dezincification resistant brass
- Nominal size: DN 15 to DN 25
- Kvs values: 0.16 m³/h to 8 m³/h
- Medium temperature: 2 °C to 120 °C
- Also suitable for systems with oxygen-rich water



VDE...M

- PN 16
- Dezincification resistant brass
- Nominal size: DN 25 to DN 40
- Kvs values: 4 m³/h to 25 m³/h
- Medium temperature: 2 °C to 120 °C
- Also suitable for systems with oxygen-rich water



VDE...C

- PN 25
- Red brass
- Nominal size: DN 15 to DN 32
- Kvs values: 0.25 m³/h to 10 m³/h
- Medium temperature: 2 °C to 130 °C
- Also suitable for systems with oxygen-rich water



DE / DI

- PN 16
- Dezincification resistant brass
- Nominal size: DN 15 to DN 50
- Kvs values: 0.63 m³/h to 40 m³/h
- Medium temperature: 2 °C to 170 °C
- Also suitable for systems with oxygen-rich water



DF...B...CI

- PN 16
- Cast iron
- Nominal size: DN 15 to DN 150
- Kvs values: 0.4 m³/h to 360 m³/h
- Medium temperature: 2 °C to 170 °C
- Valve for standard HVAC systems



DF...B...NI

- PN 16
- Nodular iron
- Pressure balanced
- Nominal size: DN 15 to DN 150
- Kvs values: 0,4 m³/h to 360 m³/h
- Medium temperature: 2 °C to 180 °C
- For district heating systems and for systems with high differential pressures



DF...C

- PN 25
- Spheroidal graphite
- Pressure balanced
- Nominal size: DN 15 to DN 150
- Kvs values: 0.4 m³/h to 360 m³/h
- Medium temperature: 2 °C to 200 °C
- For district heating systems and for systems with high differential pressures



DF...D

- PN 40
- Cast steel
- Nominal size: DN 15 to DN 100
- Kvs values: 0.25 m³/h to 160 m³/h
- Medium temperature: 2 °C to 220 °C
- For district heating systems

Centra 3-way valves



VXE / VYE

- PN 16
- Dezincification resistant brass
- Nominal size: DN 15 to DN 25
- Kvs values: 0.16 m³/h to 8 m³/h
- Medium temperature: 2 °C to 120 °C
- Also suitable for systems with oxygen-rich water



VXE...M

- PN 16
- Dezincification resistant brass
- Nominal size: DN 15 to DN 40
- Kvs values: 4 m³/h to 25 m³/h
- Medium temperature: 2 °C to 120 °C
- Also suitable for systems with oxygen-rich water



XE / XI

- PN 16
- Dezincification resistant brass
- Nominal size: DN 15 to DN 50
- Kvs values: 2.5 m³/h to 40 m³/h
- Medium temperature: 2 °C to 170 °C
- Also suitable for systems with oxygen-rich water



XF...A

- PN 6
- Cast iron
- Nominal size: DN 15 to DN 150
- Kvs values: 2.5 m³/h to 310 m³/h
- Medium temperature: 2 °C to 120 °C
- Mixing valve for standard HVAC systems



XF...B

- PN 16
- Cast iron
- Nominal size: DN 15 to DN 150
- Kvs values: 2.5 m³/h to 360 m³/h
- Medium temperature: 2 °C to 170 °C
- Mixing valve for standard HVAC systems



XF...D

- PN 40
- Cast steel
- Nominal size: DN 15 to DN 100
- Kvs values: 2.5 m³/h to 160 m³/h
- Medium temperature: 2 °C to 120 °C
- Mixing valve for high nominal pressure ratings

Valves with matching actuators

Linear Actuators

Actuators			Thermo electric
Electrical data			
Power supply	Input signal		
24 V AC	DC 0-10 V	modulating	
		3-point	
		on/off	MT4/MT8
230 V AC	DC 0-10 V	modulating	
		3-point	
		on/off	MT4 /MT8
Stroke (mm)			4/8
Adjusting force (N)			90

Centra Linear Valves



VDE

VXE

VYE



VDE...M

VXE...M



VDE...C



DE

DI

XE

XI



DF...B...CI

DF...B...NI

DF...C

DF...D



XF...A

XF...B

XF...D

Valves	Type	PN	Fitting type	Kvs	
VDE	2-way	16	External thread	0.16 to 8	15 / 20
VXE	3-way	16	External thread	0.25 to 4.8	15 / 20
VYE	3-way + bypass	16	External thread	0.4 to 8	15 / 20
VDE...M	2-way	16	External thread	4to 25	
VXE...M	3-way	16	External thread	4 to 25	
VDE...C	2-way	25	External thread	0.25 to 10	
DE	2-way	16	External thread	0.63 to 40	
DI	2-way	16	Internal thread	0.63 to 40	
XE	3-way	16	External thread	0.2 to 40	
XI	3-way	16	Internal thread	0.2 to 40	
DF...B...CI	2-way	16	Flange	0.25 to 360	
DF...B...NI	2-way	16	Flange	0.4 to 360	
DF...C	2-way	25	Flange	0.4 to 360	
DF...D	2-way	40	Flange	2.5 to 160	
XF...A	3-way	6	Flange	2.5 to 310	
XF...B	3-way	16	Flange	2.5 to 360	
XF...D	3-way	40	Flange	2.5 to 160	

Motorized

								
	M7410E...		M7410E...		ML7430E... / ML7435E...	ML7420A... / ML7425A, B...	ML7421A...	ML7421B...
	M7410C...		M7410C...					
M5410C...								
		M6410L...		M6410L...	ML6435B...	ML6420A... / ML6425A,B...	ML6421A3013	ML6421B3012
M5410L...								
6.5	6.5	6.5	6.5	6.5	6.5	20	20	38
100	180	180	300	300	400	600	1800	1800

Nominal sizes (DN)

15 / 20	15 / 20	15 / 20						
15 / 20	15 / 20	15 / 20						
15 / 20	15 / 20	15 / 20						
			25 to 40	25 to 40	25 to 40			
			25 to 40	25 to 40	25 to 40			
			25 to 32	25 to 32	25 to 32			
						15 to 50	25 to 50	
						15 to 50	25 to 50	
						15 to 50	25 to 50	
						15 to 50	25 to 50	
						15 to 50	15 to 80	100 to 150
						15 to 80		100 to 150
						15 to 80		100 to 150
						15 to 25	32 to 65	80 to 100
						15 to 40	32 to 80	100 to 150
						15 to 40	32 to 80	100 to 150
						15 to 40	15 to 80	100

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